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24737 7590 12/01/2009

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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BRIARCLIFF MANOR, NY 10510

EXAMINER

YOUNG, NATASHA E

ART UNIT

PAPER NUMBER

1797

DATE MAILED: 12/01/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,409

06/10/2005

Paulus Cornelis Duineveld

NL030545US1

3626

TITLE OF INVENTION: MANIPULATION OF MICROMETER-SIZED ELECTRONIC OBJECTS WITH LIQUID DROPLETS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/01/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24737 7590 12/01/2009

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,409 06/10/2005 Paulus Cornelis Duineveld NL030545U1 3626

TITLE OF INVENTION: MANIPULATION OF MICROMETER-SIZED ELECTRONIC OBJECTS WITH LIQUID DROPLETS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 03/01/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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YOUNG, NATASHA E 1797 422-099000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,409	06/10/2005	Paulus Cornelis Duineveld	NL030545US1	3626

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EXAMINER

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ART UNIT

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 579 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 579 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/538,409	DUINEVELD ET AL.	
	Examiner	Art Unit	
	NATASHA YOUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to remarks filed September 30, 2009.
2. ☒ The allowed claim(s) is/are 3,6,8-11 and 16-21.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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|--|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

Allowable Subject Matter

Claims 3, 6, 8-11, and 16-21 are allowed.

The closest prior art references are Smith et al (US 6,527,964 B1) in view of Becker et al (US 6,294,063 B1) and Srinivasan et al (Microstructure to Substrate Self-Assembly Using Capillary Forces, 2001).

Regarding claim 9, Smith et al discloses a method of manipulation of a solid object on a substrate, the substrate having a defined placement position on a surface thereof, wherein a region of the surface of the substrate including the defined placement position has a greater wettability than a region of the surface of the substrate adjacent the defined position so that there is a wettability contrast therebetween, the method comprising: orienting the object with respect to the placement position by means of a magnetic field and interconnecting the object with the substrate (see Abstract and column 15, line 45 through column 16, line 2).

Becker et al discloses a packet in a partitioning medium, which is matter that may be adapted to suspend and compartmentalize other matter to form packets on a reaction surface, a partitioning medium may act by utilizing differences in hydrophobicity between a fluid and a packet, and the packet may be a fluid packet, an encapsulated packet, or a solid packet (see column 4, lines 20-59 and column 5, lines 21-36).

Srinivasan et al discloses a large number of microcomponents flows over a target substrate patterned with binding sites, and part-substrates attachment and alignment

occurs spontaneously due to free energy minimization and the binding faces of the plastic pieces were made hydrophobic and the remaining surfaces were made hydrophilic (see Introduction, 3rd and 6th paragraphs).

The prior art references do not disclose or suggest a method comprising: Placing the object onto the substrate in a vicinity of a defined placement position for the object, placing a liquid droplet onto the substrate in the vicinity of the placement position of the object, immersing the object in the droplet on the surface of the substrate such that the object can freely float within the liquid droplet, moving the liquid droplet from the region having lower wettability to the region having greater wettability, and positioning the object to the defined placement position by evaporation of the liquid droplet.

Claim 16 depends on claim 9.

Regarding claim 17, Smith et al discloses a system, comprising: a substrate having a defined placement position on a surface thereof; a solid object (element) having a dissolvable layer on a surface thereof, the object being disposed on the surface of the substrate at a position different from the defined placement position; and a slurry which includes a fluid and a plurality of elements provided onto the substrate, wherein the dissolvable layer is adapted to dissolve in the slurry so that the elements float freely in the slurry, wherein a region of the surface of the substrate including the defined placement position has a greater wettability than a region of the surface of the substrate adjacent the defined placement position so that there is a wettability contrast therebetween and so that as the slurry evaporates, the elements are deposited at the defined placement position of the substrate (see Abstract; column 3, line 58 through

column 4, line 31; column 13, lines 10-31; and column 15, line 45 through column 16, line 2) such that a fluid carrying element, the substrate and the element are treated to have a hydrophilic surface and elements may be dispersed in a polar solvent and then dispersed over the so treated substrate.

Becker et al discloses a packet in a partitioning medium, which is matter that may be adapted to suspend and compartmentalize other matter to form packets on a reaction surface, a partitioning medium may act by utilizing differences in hydrophobicity between a fluid and a packet, and the packet may be a fluid packet, an encapsulated packet, or a solid packet (see column 4, lines 20-59 and column 5, lines 21-36).

Srinivasan et al discloses a large number of microcomponents flows over a target substrate patterned with binding sites, and part-substrates attachment and alignment occurs spontaneously due to free energy minimization and the binding faces of the plastic pieces were made hydrophobic and the remaining surfaces were made hydrophilic (see Introduction, 3rd and 6th paragraphs).

It would not have been obvious to one having ordinary skill in the art at the time the invention was made to combine the prior art teachings because "express" motivation to combine the references is lacking.

Claims 3, 6, 8, and 10-11 depend on claim 17.

Regarding claim 18, Smith et al discloses a method, comprising: providing a substrate having a defined placement position on a surface thereof, wherein a region of the surface of the substrate including the defined placement position has a greater wettability than a region of the surface of the substrate adjacent the defined placement

position (see Abstract and column 13, lines 10-31) and the blocks may have magnetic characteristics (see column 15, line 45 through column 16, line 2).

Becker et al discloses a packet in a partitioning medium, which is matter that may be adapted to suspend and compartmentalize other matter to form packets on a reaction surface, a partitioning medium may act by utilizing differences in hydrophobicity between a fluid and a packet, and the packet may be a fluid packet, an encapsulated packet, or a solid packet (see column 4, lines 20-59 and column 5, lines 21-36).

Srinivasan et al discloses a large number of microcomponents flows over a target substrate patterned with binding sites, and part-substrates attachment and alignment occurs spontaneously due to free energy minimization and the binding faces of the plastic pieces were made hydrophobic and the remaining surfaces were made hydrophilic (see Introduction, 3rd and 6th paragraphs).

The prior art references do not disclose or suggest a method, comprising: providing onto the surface of the substrate a liquid droplet having a solid object disposed therein, the solid object having a magnetic layer; rotating the object within the liquid droplet to a specific orientation with respect to the substrate by applying a magnetic field to the liquid droplet; and evaporating the liquid droplet so that the object is deposited at the defined placement position on the substrate.

Claims 19-21 depend on claim 18.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./
Examiner, Art Unit 1797

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797